



**B.Tech III Semester Supplementary Examinations, July 2024**

**STATISTICAL METHODS**  
 (Common to CSE(AI&ML) & CSE(DS))

**Maximum Marks: 70**

Date:20.07.2024 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

All the following questions carry equal marks		(10X2M=20 Marks)	CO	Bloom Tx																
1	Define Classification of Data.		1	L1																
2	Write any two merits and demerits of Mean?		1	L1																
3	Find $D_1$ and $D_9$ for 45,8,90,34,19,5,6,3,2,67.		2	L1																
4	Calculate Quartile deviation to the following data.		2	L1																
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;">10</td> <td style="padding: 2px;">12</td> <td style="padding: 2px;">14</td> <td style="padding: 2px;">16</td> <td style="padding: 2px;">17</td> <td style="padding: 2px;">20</td> <td style="padding: 2px;">21</td> </tr> <tr> <td style="padding: 2px;">F</td> <td style="padding: 2px;">5</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">7</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">15</td> <td style="padding: 2px;">25</td> <td style="padding: 2px;">22</td> </tr> </table>	X	10	12	14	16	17	20	21	F	5	3	7	1	15	25	22			
X	10	12	14	16	17	20	21													
F	5	3	7	1	15	25	22													
5	Define point estimation and interval estimation?		3	L1																
6	The mean and standard deviation of a population are 11795 and 14,054 respectively. Construct 99% confidence interval for the true mean. If sample mean is 11 795 and $n = 50$ .		3	L1																
7	Define Null Hypothesis.		4	L1																
8	Define Right tailed test.		4	L1																
9	write the types of correlation.		5	L1																
10	Write any two use of regression.		5	L1																

**Part-B**

Answer All the following questions. (5X10M=50Marks)

11	Explain graphical presentation of data. (10m)		1	L2																
OR																				
12	Find Geometric mean to the following data. (10m)		1	L2																
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">Classes</td> <td style="padding: 2px;">0-100</td> <td style="padding: 2px;">100-200</td> <td style="padding: 2px;">200-300</td> <td style="padding: 2px;">300-400</td> <td style="padding: 2px;">400-500</td> <td style="padding: 2px;">500-600</td> <td style="padding: 2px;">600-700</td> </tr> <tr> <td style="padding: 2px;">frequency</td> <td style="padding: 2px;">23</td> <td style="padding: 2px;">6</td> <td style="padding: 2px;">67</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">5</td> <td style="padding: 2px;">9</td> <td style="padding: 2px;">10</td> </tr> </table>	Classes	0-100	100-200	200-300	300-400	400-500	500-600	600-700	frequency	23	6	67	3	5	9	10			
Classes	0-100	100-200	200-300	300-400	400-500	500-600	600-700													
frequency	23	6	67	3	5	9	10													
13	Calculate Mean Deviation from mean and its co-efficient to the following data. (10m)		2	L2																
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 2px;">Classes</td> <td style="padding: 2px;">0-5</td> <td style="padding: 2px;">5-10</td> <td style="padding: 2px;">10-15</td> <td style="padding: 2px;">15-20</td> <td style="padding: 2px;">20-25</td> <td style="padding: 2px;">25-30</td> <td style="padding: 2px;">30-35</td> </tr> <tr> <td style="padding: 2px;">frequency</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">13</td> <td style="padding: 2px;">35</td> <td style="padding: 2px;">13</td> <td style="padding: 2px;">15</td> <td style="padding: 2px;">12</td> <td style="padding: 2px;">11</td> </tr> </table>	Classes	0-5	5-10	10-15	15-20	20-25	25-30	30-35	frequency	2	13	35	13	15	12	11			
Classes	0-5	5-10	10-15	15-20	20-25	25-30	30-35													
frequency	2	13	35	13	15	12	11													

	OR								
14	Calculate Karl Pearson's coefficient of Skewness to the following data.(10m)							2	L2
	Classes	0-2	2-4	4-6	6-8	8-10	10-12	12-14	
	frequency	20	1	7	3	15	19	11	
15	<p>a) A random sample of 8 envelopes is taken from the letter box of a post office and their weights in grams are found to be : 12.1,11.9,12.4, 12.3, 11.5, 11.6, 12.1,and 12.4. find the maximum error of mean and also construct 95% confidence interval for mean. (5m)</p> <p>b) Among 100 fish caught in a large lake, 18 were inedible due to the pollution of the environment. With what confidence can we assert that the error of this estimate is at most 0.065? (5m)</p>							3	L2
	OR								
16	A population consists of five numbers 4,3,6,9,15and 27. Consider all possible samples of size three Which can be drawn with out replacement from this population. Find i) The population mean. ii) The standard deviation of the population.iii) The mean of the sampling distribution of means. iv) standard deviation of the sampling distribution of means. (10m)							3	L2
17	Random samples of 400 men and 600 women were asked whether they would like to have a flyover near the residence, 200 men and 325 women were in favour of the proposal. Test the hypothesis that proportions of men and women in favor of the proposal are same, at 5% level. (10m)							4	L2
	OR								
18	In a city A 20% of a random sample of 900 school boys has certain slight physical defect .In another city B 18.5% of a random sample of 1600 schoolboys has the same defect . Is the difference between the proportion significance at 5% l.o.s. (10m)							4	L2
19	A random sample of 5 college students is selected and their marks in mathematics and statistics are found to be (10m)							5	L2
		1	2	3	4	5			
	mathematics	85	60	85	40	90			
	statistics	93	75	65	40	80			
	Calculate correlation between mathematics and statistics .								
	OR								
20	A test was given to five students taken at random from the class of three schools of a town. Carry out the ANOVA and state your conclusions. (10m)							5	L2
	School I	9	4	6	5	8			
	School II	7	4	9	4	5			
	School III	4	5	8	7	6			